ABSTRACT

Human myelin basic protein (h-MBP) has a molecular weight of 18.5 KD and contains 170 amino acid residues. Synthetic peptides ranging in length from about 8 to 25 residues and covering the entire length of the protein have been produced. Antibodies to h-MBP (anti-MBP) were found to be neutralized by the synthetic peptides, *in vitro*, which span the h-MBP from about amino acid residue 61 to about amino acid residue 106. The peptides, which cover both the amino (about residues 1 to 63) and carboxy (about residues 117 to 162) terminals of h-MBP did not neutralize purified anti-MBP. Intrathecal administration of peptide MBP75-95, either as a single dose, or as repeated injections for periods up to 10 weeks, produced complete binding-neutralization of free (F) anti-MBP with no change in bound (B) levels. A control peptide MBP35-58 had no effect on F or B anti-MBP levels. Intravenous administration of MBP75-95 resulted in significant decline of F and B CSF anti-MBP levels over a period of one month. Administration of MBP synthetic peptides to MS patients either intrathecally or intravenously did not have any adverse neurological effects and systemic complications did not occur. The MBP epitope for MS anti-MBP has been localized to an area between Pro85 and Pro96.